

EXHIBIT 79

Declaration of Michael T. Crimmins

**IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA
CASE NO. 1:14-CV-954**

**STUDENTS FOR FAIR
ADMISSIONS, INC.,**

Plaintiff,

v.

**UNIVERSITY OF NORTH
CAROLINA et al.,**

Defendants.

DECLARATION OF MICHAEL T. CRIMMINS

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I, Michael T. Crimmins, hereby make this declaration from my personal knowledge and, if called to testify to these facts, could and would do so competently.

Experience

1. I am the Mary Ann Smith Distinguished Professor with the Department of Chemistry at The University of North Carolina at Chapel Hill (“UNC-Chapel Hill”). I previously served for four years as Senior Associate Dean for the School of Natural and Mathematical Sciences at UNC-Chapel Hill.

2. I earned a Bachelor of Arts (with honors) from Hendrix College. I earned a Ph.D. from Duke University and then went on to complete Post-Doctoral work at the California Institute of Technology.

3. I was a Graduate Assistant at Duke University from 1976-80. Following that position, I was a Research Fellow at the California Institute of Technology from 1980-81.

4. I began my time at UNC-Chapel Hill as an Assistant Professor of Chemistry in 1980. Since then, I have held the roles of Associate Professor of Chemistry, Vice Chair of Facilities and of Graduate Studies with the Department of Chemistry, George and Alice Welsh Distinguished Term Professor, the Mary Ann Smith Distinguished Professor of Chemistry, Professor of Medicinal Chemistry-Natural Products with the UNC Eshelman School of Pharmacy, Chair of the Department of Chemistry, and Senior Associate Dean for Natural Sciences.

5. I was Executive Director of the Chancellor's Science Scholars Program from 2015-2017.

6. A true and correct copy of my curriculum vitae is attached hereto as Crimmins Decl. Exhibit 1. A photograph of me from my UNC webpage is attached hereto as Crimmins Decl. Exhibit 2.

7. I am a White male.

Educational Benefits of Diversity

8. I believe that learning is more effective and that students achieve a greater benefit when they are part of a diverse academic community. Therefore, in my view, diversity is essential to the academic experience we want our students to have at UNC-Chapel Hill in all disciplines.

9. I am aware that the UNC School of Education has done studies on the benefits of diversity, and they have determined that diversity has a positive impact on students. I have also observed the benefits anecdotally in my years of experience as an educator.

10. It is my opinion that the more one understands about other cultures and races, the more one can function at a high level in the global structure. By being around different types of people, students learn the social structure of the planet. This is important, as we live in a global community.

11. Many students come from non-diverse communities but will ultimately function at a higher level at the University and beyond because of the diverse community they experience here.

12. Students who are part of a diverse classroom setting receive many important benefits. For one, the students may get to know those around them, helping them to understand differing cultural backgrounds. They are also exposed to different points of view when a classroom is more diverse. It has also been my experience that diversity helps students to better understand difficult concepts by looking at the concept from a different direction or point-of-view. There is also a sense of community that can be created within a diverse classroom. This community remains even after the class ends, as students often interact outside of class through study groups.

13. I am familiar with and fully support the Faculty Council resolution, Resolution 2016-12. On Commitment to Diversity and Inclusion.

Diversity and Innovation in the Classroom

14. I have observed that diversity has helped to shape and improve the way instructors lecture and how they conduct their classroom activities.

15. I wanted to change my teaching style when I saw the results of a study by my colleague in the Biology Department at UNC-Chapel Hill, Kelly Hogan. She compiled information from key people in the scientific community which transformed the way introductory physics classes were taught. After changing the way the physics classes were taught, the students performed better on exams and left the course with a greater conceptual

understanding of the discipline. Although performance improved overall among all students, the gains were greatest among women and minorities.

16. Traditionally, science courses have been taught on a blackboard by an expert, who is stationed in the front of the classroom. These courses were taught in a lecture-style format. Students used to come in and take notes during a lecture and would work out hard problems by themselves outside of the classroom. The challenges with this method included holding students' attention for an entire lecture period, reaching all students and providing adequate opportunity for students to critically think through the arguments being developed.

17. When I taught a traditional lecture-style class to a diverse group of students, it was apparent to me that White males understood me better than the other students. There was a clear disparity in performance because of the way that the courses were being taught.

18. Arizona State University pioneered a "force concept inventory" which measured how well students understood the concepts of physics. The study found that many students were simply memorizing equations and not understanding concepts.

19. Approximately fifteen years ago, educational and scientific research tended to recognize that if instructors changed their teaching method and offered different and more interactive ways for students to learn, many more students would find it easier to understand the material. Eric Mazur, a physicist at Harvard University, is a pioneer of this type of peer instruction method.

20. The Association of American Universities (“AAU”) Initiative, following this movement, encourages faculty to take advantage of active learning in the classroom. The goal of this is to have students talk about and interact with regard to information presented in the classroom while an expert is present. The students listen to the lecturer and then interact, while talking to each other and trying to help one another understand the information being presented.

21. Most classrooms using this method present the students with lecture notes prior to class. Online videos often present the bulk of course information along with written course notes. Students often complete online homework prior to class and present any questions during class. When students pose questions during class, lecturers are given minute-by-minute feedback on what the students do and do not understand. This classroom response system is a valuable teaching and learning opportunity for both students and lecturers.

22. In my classroom, I have adopted these new teaching methods and attempted to create a “community of learning.” I encourage students to prepare to some extent prior to class. In addition, I encourage students to talk to each other to try to solve difficult problems. I allow students to choose their seats in class, but prefer they sit next to different people in every class. By sitting next to different people, students become part of a different group, interacting with one another to solve problems.

23. While some faculty members at UNC-Chapel Hill assign seats to try to diversify their classroom, this is not my personal practice. I find that there are some pockets

of non-diversity, but overall with the increasing diversity there are scattered distributions of students within my classroom. In my own classroom, I have witnessed a large change in diversity over the last fifteen years. Fifteen years ago, my classrooms were not very diverse, and approximately 85% of my students were white. Currently, there are many more Western Asians, more African-Americans, and more Latino students. It is amazing how diversity has changed in such a short amount of time.

24. The diversity in my classrooms allows my students to learn from each other, break down stereotypes, and form cross-cultural connections. With increased diversity, we are preparing more students of different backgrounds for careers in the sciences, which will contribute to innovation in our fields.

25. In the lower level science courses, many instructors at UNC-Chapel Hill have succeeded in transforming their classrooms, allowing them to become more beneficial to a diverse student body. The lower-level science courses are where changes in the classroom have the most impact, because this is where we tend to lose minority students.

26. With these innovations in the classroom setting, performance has improved for all students. It is important to note that the University is not lowering standards; the students are simply performing better and at higher levels. Although there is not hard data on all aspects of diversity in the classroom, the hard data that has been collected, as well as anecdotal evidence, tends to show that these methods result in the elevated performance of all students. While all students perform at a higher level, first generation college students, historically underrepresented minorities, and women made gains at a

disproportionately higher level than the group as a whole when exposed to these types of teaching styles. This is consistent with what I have seen in my own classrooms.

Chancellor's Science Scholars Program

27. The Chancellor's Science Scholars Program at UNC-Chapel Hill is modeled after the highly successful Meyerhoff Scholars Program at the University of Maryland Baltimore County, and its aim is to get minorities into graduate school in the sciences and to increase the number of minorities in the sciences. Currently UNC-Chapel Hill is implementing this program, as is Pennsylvania State University. At UNC-Chapel Hill, the program is open to all students who have an interest in PhD or MD/PhD Sciences, and approximately 60 percent of its participants are historically underrepresented minorities. The program is part of UNC's commitment to the diversity of science/scientists at the PhD level.

28. The UNC-Chapel Hill program has had four cohorts with a fifth cohort starting this fall. The first cohort, which consisted of twenty-one students, graduated from the University. The second cohort has thirty-two students, the third cohort has thirty-five students, and the fourth and fifth cohorts each have thirty-four students.

29. The theory behind this type of program is to create a cohesive unit to support each other. UNC-Chapel Hill requires that these students participate in a Summer Bridge program, which takes place during the second summer session. It consists of six weeks of intensive math, communications, and chemistry workshops. The students live together,

walk together, and act as a unit for the entire six weeks. It is very restrictive and prohibits use of social media and phones for twenty-three hours a day.

30. The students in the Chancellor's Science Scholars Program live in the same residence hall their first year and form a learning community. After the first year, the students are allowed to "scatter." The idea supporting this type of a learning community is that if one student falls, the rest of the students will pick the person up and help them. Students participate in study groups and work very closely together. The Chancellor's Science Scholars Program Coordinator is currently conducting research on the initial outcomes of the program, and we are very enthusiastic about its promise.

Conclusion

31. I believe that UNC-Chapel Hill's efforts in developing a diverse campus are beneficial to our academics and to our students. Students who are a product of a diverse university experience are able to understand different cultural, ethnic, and racial backgrounds and will be better prepared to function in a work environment. Diversity has also been a major contributor to innovation in teaching methods for the scientists, which has improved learning and understanding for all students. With this innovation in our teaching and programs like the Chancellor's Science Scholars Program, I believe we can make real progress in reaching our students and diversifying the pipeline for careers in the sciences.

I declare under the penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed on: 7-6-17

A handwritten signature in blue ink, appearing to read "Michael T. Crimmins", written over a horizontal line.

Michael T. Crimmins

Exhibit 1 to Crimmins Declaration

MICHAEL T. CRIMMINS

MARY ANN SMITH DISTINGUISHED PROFESSOR OF CHEMISTRY

DEPARTMENT OF CHEMISTRY, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

CHAPEL HILL, NORTH CAROLINA 27599-3290

email: crimmins@email.unc.edu; (919)-966-5177; (919)-962-9277; FAX (919)-962-2388;

EDUCATION:

B.A., with Honors (1976) Hendrix College, Conway, Arkansas

Ph.D., (1980) Duke University, Durham, North Carolina (with Steven W. Baldwin)

Postdoctoral (1980-81) California Institute of Technology, Pasadena, CA (with David A. Evans)

PROFESSIONAL EXPERIENCE:

Graduate Assistant, Duke University, Durham, North Carolina (1976-80)

Research Fellow, California Institute of Technology, Pasadena, California (1980-81)

Assistant Professor of Chemistry, UNC, Chapel Hill, North Carolina (1981-88)

Associate Professor of Chemistry, UNC, Chapel Hill, North Carolina (1988-93)

Professor of Chemistry, UNC, Chapel Hill, North Carolina (1993-2003)

Visiting Associate Professor, Duke University, Durham, North Carolina (1991)

Vice Chair, Facilities, Department of Chemistry, UNC, Chapel Hill, North Carolina (1992-93)

Vice Chair, Graduate Studies, Department of Chemistry, UNC, Chapel Hill, NC (1995-2000)

George and Alice Welsh Distinguished Term Professor (2001-2003)

Mary Ann Smith Distinguished Professor of Chemistry UNC, Chapel Hill, NC (2003-)

Professor of Medicinal Chemistry-Natural Products, School of Pharmacy, UNC (2007-)

Chair, Department of Chemistry, University of North Carolina at Chapel Hill, (2007-2009)

Senior Associate Dean for Natural Sciences, UNC, Chapel Hill, (2009-2013)

Co-Director, AAU STEM Education Project Site UNC, Chapel Hill (2013-2017)

Executive Director, Chancellor's Science Scholars Program, UNC, Chapel Hill (2015-2017)

SELECTED HONORS AND PROFESSIONAL ACTIVITIES:

M. J. McHenry Chemistry Prize, Hendrix College (1976)

C. R. Hauser Fellow, Duke University (1979-80)

NIH-NCI Postdoctoral Fellow, California Institute of Technology (1980-81)

Alfred P. Sloan Fellow (1986-90)

Research Development Award, University of North Carolina (1988)

UNC-CH Foundation Leave (1991-92)

Invited Expert Analyst *ChemTracts Organic Chemistry* (1993-2005)

Chair, North Carolina Section of the American Chemical Society (1994)

American Cyanamid Faculty Fellow (1994)

Senior Class Favorite Faculty Award (1997)

Tanner Faculty Award for Excellence in Undergraduate Teaching, UNC-CH (1999)

Academy of Distinguished Teaching Scholars, UNC-CH (2000)

Arthur C. Cope Scholar Award, American Chemical Society (2001)

George and Alice Welsh Distinguished Term Professor (2001-2003)

Lineberger Comprehensive Cancer Center, Member (2001-)

Mary Ann Smith Distinguished Professor of Chemistry UNC, Chapel Hill, NC (2003-)

Scientific Advisory Board, Chimerix Inc. (2002-2011)

Editorial Advisory Board, *Journal of Organic Chemistry*, (2004-2007)

Charles Holmes Herty Medal, Georgia Section, American Chemical Society (2004)

NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)
International Editorial Advisory Board, *Organic & Biomolecular Chemistry* (2007-2012)
North Carolina ACS Section Distinguished Speaker Award (2008)
Ernest Guenther Award in the Chemistry of Natural Products, American Chemical Society (2010)
UNC Board of Governor's Award for Excellence in Teaching (2016)
National Academies Teaching Fellow (2017)

Lectureships: Roche Distinguished Lecturer, Colorado State University (2000), Merck Sharpe and Dohme Distinguished Visiting Lecturer, UK (2001), Abbott Labs Student Select Lecturer, U. of Notre Dame (2001), Merck-Frosst Lecturer, U. of Ottawa (2002), Student Select Lecturer, U. of Pennsylvania (2002), Roche Distinguished Lecturer, U. of Colorado (2002), Closs Lecturer, U. of Chicago (2004), Abbott Lecturer, Massachusetts Institute of Technology (2009)

PUBLICATIONS

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2. "A Facile Synthesis of δ -Valerolactones by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *Tetrahedron Lett.* **1978**, 4197-4200.
3. "Synthesis of the Alleged Genipic Acid by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *J. Am. Chem. Soc.* **1980**, 102, 1198-1199.
4. "Total Synthesis of (\pm) and (-) Sarracenin by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *J. Am. Chem. Soc.* **1982**, 104, 1132-1133.
5. "Addition of 1-Methoxy-1-butene-3-yne to Lactones: Synthesis of Substituted Spiroketal," Crimmins, M. T.; Bankaitis, D. M. *Tetrahedron Lett.* **1983**, 24, 4551-4554.
6. "Synthesis of 5-Alkyl-2,3-dihydropyrones from 1-Methoxy-1-butene-3-yne," Crimmins, M. T.; Bankaitis, D. M. *Tetrahedron Lett.* **1983**, 24, 5303-5304.
7. "Intramolecular Photocycloaddition-Cyclobutane Fragmentation: A Highly Stereoselective Total Synthesis of Pentalenic Acid," Crimmins, M. T.; DeLoach, J. A. *J. Org. Chem.* **1984**, 49, 2076-2077.
8. "Conjugate Addition-Cycloacylation of Acetylenic Diesters: Synthesis of Highly Functionalized Cyclopentenones," Crimmins, M. T.; Mascarella, S. W.; DeLoach, J. A. *J. Org. Chem.* **1984**, 49, 3033-3035.
9. "Intramolecular Photocycloadditions: Synthesis of Sterically Congested Substituted [4.5.5.5] Fenestranes.: Models for the Synthesis of Laurenene and Silphinene. Crimmins, M. T.; Mascarella, S. W.; Bredon, L. D. *Tetrahedron Lett.* **1985**, 26, 997-1000.

10. "Intramolecular Photocycloadditions: Total Synthesis of (±)-Pentalenene, (±)-Pentalenic Acid, and (±)-Deoxypentalenic Acid," Crimmins, M. T.; DeLoach, J. A. *J. Am. Chem. Soc.* **1986**, *108*, 800-806.
11. "Synthesis of the Hexahydrobenzofuran Subunit of the Milbemycins and the Avermectins," Crimmins, M. T.; Lever, J. G. *Tetrahedron Lett.* **1986**, *27*, 291-294.
12. "Intramolecular Photocycloadditions-Cyclobutane Fragmentation: Total Synthesis of (±)-Silphinene," Crimmins, M. T.; Mascarella, S. W. *J. Am. Chem. Soc.* **1986**, *108*, 3435-3438.
13. "Synthesis and Electropolymerization of Distyrylbipyridine and Methylstyrylbipyridine Complexes of Iron, Ruthenium, Osmium, Rhenium, and Cobalt," Leidner, C. R.; Sullivan, B. P.; Reed, R. A.; White, B. A.; Crimmins, M. T.; Murray, R. W.; Meyer, T. J. *Inorganic Chemistry* **1987**, *26*, 882-891.
14. "Intramolecular Photocycloaddition-Cyclobutane Fragmentation: Total Synthesis of the Fenestrane (±)-Laurenene," Crimmins, M. T.; Bredon, L. D. *J. Am. Chem. Soc.* **1987**, *109*, 6199-6200.
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18. "ChemIntosh and ChemPanion," Software Review, Crimmins, M. T. *J. Am. Chem. Soc.* **1987**, *109*, 6905.
19. "Studies Directed Toward the Total Synthesis of the Milbemycins and Avermectins" in "Studies in Natural Products Chemistry," Crimmins, M. T.; Hollis, W. G., Jr.; O'Mahony, R. Elsevier, 1988; Atta-Ur-Rahman, Ed., p.435-485.
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21. "Intramolecular [2 + 2] Enone Olefin Photocycloadditions in Natural Product Synthesis," Crimmins, M.T. *Chemical Reviews*, **1988**, *88*, 1453-1473.
22. "A Synthesis of (-)-Talaromycin A," Crimmins, M. T.; O'Mahony, R. *J. Org. Chem.* **1989**, *54*, 1157-1161.

23. "Synthesis of the Spiroketal Fragment of Avermectin B_{1b}," Crimmins, M. T.; O'Mahony, R. *Tetrahedron Lett.* **1989**, 30, 5993-5996.
24. "Enone-Furan Photocycloadditions; A Model for the Synthesis of the Ginkgolides," Crimmins, M. T.; Thomas, J. B. *Tetrahedron Lett.* **1989**, 30, 5997-6000.
25. "Formal 3+2 Cycloaddition by Addition of Zinc Homoenolates to Acetylenic Esters," Crimmins, M. T.; Nantermet, P. G. *J. Org. Chem.* **1990**, 55, 4235-4236.
26. "Synthesis of Spiroketal: A General Approach," Crimmins, M. T.; O'Mahony, R. *J. Org. Chem.* **1990**, 55, 5894-5900.
27. "Photochemical [2+2] Cycloadditions" in "Comprehensive Organic Synthesis" Vol. 3, Pergamon Press, Oxford, 1991, B.M. Trost, Ed.
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29. "Total Synthesis of Bilobalide," Crimmins, M. T.; Jung, D. K.; Gray, J.L. *J. Am. Chem. Soc.* **1992**, 112, 5445-5447.
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35. "Formal 3+2 Cycloaddition by Addition of Zinc Homoenolates to Acetylenic Esters and Amides," Crimmins, M. T.; Nantermet, P. G.; Trotter, B. W.; Vallin, I.M.; Watson, P. S.; McKerlie, L. A.; Reinhold, T. L.; Cheung, A. W. H.; Stetson, K. A.; Dedopoulou, D.; Gray, J. L. *J. Org. Chem.* **1993**, 58, 1038-1047.
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38. "Allene" Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
39. "Ketene Diethyl Acetal" Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
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41. "Isobutene" Kim-Meade, A.S.; Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
42. "Asymmetric Synthesis of 3',4'-Di-O-(-)-Camphanoyl-(+)-Cis-Khellactone (DCK), A Potent Anti-HIV Agent," Xie, L.; Crimmins, M. T.; Lee, K. H. *Tetrahedron Lett.* **1995**, 36, 4529-4532.
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49. "A Convenient Synthesis of Unsymmetrical, Substituted γ -Pyrone from Meldrum's Acid," Zawacki, F. J.; Crimmins, M. T. *Tetrahedron Lett.* **1996**, 37, 6499-6502.
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57. "The Synthesis of 2-Alkyl-4-Pyrones from Meldrum's Acid," Crimmins, M. T.; Washburn, D. G.; Zawacki, F. J. *Organic Syntheses* 1999.
58. "Double Diastereoselection in Intramolecular Photocycloadditions: A Radical Rearrangement Approach to the Total Synthesis of the Spirovetivane Phytoalexin, (\pm)-Lubiminol," Crimmins, M. T.; Wang, Z.; McKerlie, L. A. *J. Am. Chem. Soc.* **1998**, 120, 1747-1756.
59. "Recent Advances in the Asymmetric Synthesis of Carbocyclic Nucleosides," Crimmins, M. T. *Tetrahedron* **1998**, 54, 9229-9272.
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61. "A Convenient Synthesis of 3-Butenal," Crimmins, M. T.; Kirincich, S. J.; Wells, A. J.; Choy, A.L. *Synthetic Commun.* **1998**, 28, 3675-3679.
62. "Synthesis of the AB Spiroketal Subunit of Spongistatin 1 (Altohyrtin A): The Pyrone Approach," Crimmins, M.T.; Washburn, D.G. *Tetrahedron Lett.* **1998**, 39, 7487-7490.
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INVITED RESEARCH SEMINARS

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| 130. Meyerhoff Adaptation Summit, HHMI, Chevy Chase, MD | 3/30/2017 |
| 129. Humanities and Human Values Faculty Series, UNC-Chapel Hill | 2/21/2017 |
| 128. UNC-CH Board of Trustees Meeting | 1/26/2017 |
| 127. 5 th Annual Bridging the Gap Conference, Raleigh, NC | 10/25/2016 |
| 126. Paquette Legacy Symposium, Ohio State University, Columbus, OH | 5/7/2015 |
| 125. Givaudan Flavors, Corp., Cincinnati, OH | 9/21/2010 |
| 124. Gordon Research Conference on Reactions and Processes | 7/21/2010 |
| 124. Ernest Guenther Award Address, ACS National Meeting, SF | 3/23/2010 |
| 123. Massachusetts Institute of Technology, Cambridge, MA | 3/12/2009 |
| 122. NC ACS Distinguished Speaker Lecture, RTP, NC | 10/25/2008 |
| 121. Belgian Organic Synthesis Symposium, Ghent, Belgium | 7/14/2008 |
| 120. UNC School of Pharmacy, Chapel Hill, NC | 4/9/2008 |
| 119. Tenth International Conference on Chemistry of Antibiotics | 8/13/2007 |
| 118. Glaxo-Smith Kline, Research Triangle Park, NC | 3/28/2007 |
| 117. Vanderbilt University, Nashville, TN | 12/11/2006 |
| 116. University of Richmond, Richmond, VA | 12/8/2006 |
| 115. Loughborough Synthesis Symposium, University of Loughborough | 11/8/2006 |
| 114. AstraZeneca Pharmaceuticals, Charnwood, England | 11/7/2006 |
| 113. Philadelphia Organic Chemists Club Symposium, Philadelphia, PA | 10/16/2006 |
| 112. Gordon Research Conf. on Heterocyclic Chemistry, Newport, RI | 7/5/2006 |
| 111. Polyethers Synthesis Symposium Pacificchem, Honolulu | 12/15/2005 |
| 110. Princeton Fall Organic Symposium, Princeton, NJ | 9/30/2005 |
| 109. Proctor and Gamble Pharmaceutical Colloquium | 8/19/2005 |
| 108. Bristol-Myers-Squibb, New Brunswick, NJ | 5/19/2005 |
| 107. Rhodia-Chirex Symposium, Amelia Island, FL | 4/17/2005 |
| 106. University of Chicago, Chicago, IL | 12/3/2004 |
| 105. Purdue University, West Lafayette, IN | 11/2/2004 |
| 104. Gulf Coast Chemistry Conference, Pensacola, FL | 9/10/2004 |
| 103. Gordon Research Conference on Natural Products, Tilton, NH | 7/25/2004 |
| 102. Glaxo-Smith Kline, Philadelphia, PA | 7/9/2004 |
| 101. French American Chemical Society X, Charleston, SC | 6/9/2004 |
| 100. Herty Medal Address, Atlanta, GA | 5/24/2004 |
| 99. Bristol-Myers-Squibb, Wallingford, CT | 5/20/2004 |
| 98. University of Georgia, Athens, GA | 3/25/2004 |
| 97. Pfizer Ann Arbor, Ann Arbor, MI | 2/25/2004 |
| 96. SERMACS, Atlanta GA | 11/18/2003 |
| 95. PPD Discovery, RTP, NC | 10/8/2003 |
| 94. IUPAC Meeting Ottawa, Ontario | 8/12/2003 |
| 93. Bayer Pharmaceuticals, West Haven, CT | 6/26/2003 |
| 92. Pfizer, Inc., Groton, CT | 6/25/2003 |
| 91. University of Michigan, Ann Arbor, MI | 5/6/2003 |
| 90. Polyethers Synthesis Symposium ACS Meeting New Orleans, LA | 3/23/2003 |
| 89. Schering Corporation, Bloomfield, NJ | 3/11/2003 |
| 88. University of Delaware, Newark, DE | 2/21/2003 |
| 87. SUGEN Pharmaceuticals, San Francisco, CA | 11/14/2002 |
| 86. University of Colorado, Boulder, CO | 10/22/2002 |

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| 85. Gordon Research Conference on Reactions and Processes | 7/26/2002 |
| 84. University of Minnesota, Minneapolis, St-Paul, MN | 6/14,15/2002 |
| 83. Abbott Labs, Abbott Park, IL | 5/08/2002 |
| 82. University of Illinois at Chicago, Chicago, IL | 5/07/2002 |
| 81. University of Pennsylvania, Philadelphia, PA | 4/15/2002 |
| 80. University of Ottawa, Ottawa, Ontario, Canada | 3/2/2002 |
| 79. Merck Frost, Montreal, Quebec, Canada | 3/1/2002 |
| 78. Indiana University, Bloomington, IN | 1/14/2002 |
| 77. University of Notre Dame, South Bend, IN | 12/05/2001 |
| 76. University College London, London, UK | 11/14/2001 |
| 75. Merck, Terlings Park, UK | 11/13/2001 |
| 74. University of Leeds, Leeds, UK | 11/12/2001 |
| 73. University of Southampton, Southampton, UK | 11/09/2001 |
| 72. Oxford University, Oxford, UK | 11/08/2001 |
| 71. Schering Corporation, Bloomfield, NJ | 9/26/2001 |
| 70. Arthur C. Cope Scholar Award Address, Chicago, IL | 8/28/2001 |
| 69. Bristol-Myers-Squibb Company, Princeton, NJ | 6/4/2001 |
| 68. R.W. Johnson Pharmaceutical Research Institute, Raritan, NJ | 4/18/2001 |
| 67. AstraZeneca Pharmaceuticals, Wilmington, DE | 2/06/2001 |
| 66. University of Texas at Austin, Austin TX | 1/19/2001 |
| 65. Texas A and M University, College Station, TX | 1/18/2001 |
| 64. University of Missouri, Columbia, MO | 11/17/2000 |
| 63. Pennsylvania State University, State College, PA | 11/6/2000 |
| 62. Colorado State University, Fort Collins, CO | 10/23/2000 |
| 61. Gulf Coast Chemistry Conference, Pensacola, FL | 9/15/2000 |
| 60. Wyeth-Ayerst, Pearl River, NY | 3/3/2000 |
| 59. University of California at Irvine, Irvine, CA | 12/11/99 |
| 58. Chiron Corporation, Emeryville, CA | 10/11/99 |
| 57. Merck, Sharp, and Dohme Co., Raritan, NJ | 5/12/99 |
| 56. Merck, Sharp, and Dohme Co., West Point, PA | 5/11/99 |
| 55. Dupont, Wilmington DE | 9/30/98 |
| 54. Eli Lilly and Co., Indianapolis, IN | 9/15/98 |
| 53. Ohio State University, Columbus, OH | 12/11/97 |
| 52. Hendrix College, Conway, AR | 11/17/97 |
| 51. University of Maryland, College Park, MD | 11/4/97 |
| 50. Sepracor, Inc; Marlborough, MA | 10/16/97 |
| 49. International Symposium on Olefin Metathesis, St. Augustine, FL | 7/16/97 |
| 48. Wayne State University, Detroit, MI | 1/17/97 |
| 47. Research Triangle Institute, Research Triangle Park, NC | 1/10/97 |
| 46. SUNY Stony Brook, Stony Brook, NY | 11/14/96 |
| 45. Wake Forest University, Winston-Salem, NC | 4/17/96 |
| 44. Indiana University, Bloomington, IN | 2/19/96 |
| 43. Ciba Geigy, Inc., Summit, NJ | 11/15/95 |
| 42. University of Richmond, Richmond, VA | 9/22/95 |
| 41. Ohio University, Athens, OH | 4/21/95 |
| 40. California Institute of Technology, Pasadena, CA | 3/16/95 |
| 39. University of California at Berkeley, Berkeley, CA | 3/15/95 |
| 38. Stanford University, Stanford, CA | 3/14/95 |

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| 37. Emory University, Atlanta, GA | 11/30/94 |
| 36. Burroughs-Wellcome Company, Research Triangle Park, NC | 5/20/94 |
| 35. Pfizer Inc., Groton, CT | 5/12/94 |
| 34. Bristol-Myers-Squibb Company, New Brunswick, NJ | 1/20/94 |
| 33. Glaxo, Inc., Research Triangle Park, NC | 9/23/93 |
| 32. Gordon Research Conference on Heterocycles, New Hampton, NH | 7/8/93 |
| 31. R.W. Johnson Pharmaceutical Research Institute, Raritan, NJ | 12/5/91 |
| 30. Clemson University, Clemson, S.C. | 11/21/91 |
| 29. Merck, Sharp, and Dohme Co., West Point, PA | 11/9/90 |
| 28. University of Florida, Gainesville, FL | 2/15/90 |
| 27. Duke University, Durham, NC | 12/1/89 |
| 26. American Cyanamid Company, Princeton, NJ | 5/12/89 |
| 25. University of Virginia, Charlottesville, VA | 3/17/89 |
| 24. Rhone-Poulenc, Research Triangle Park, NC | 2/7/89 |
| 23. University of Texas, Austin, TX | 1/27/89 |
| 22. Texas A and M University, College Station, TX | 1/26/89 |
| 21. University of Colorado, Boulder, CO | 11/30/88 |
| 20. Ohio State University, Columbus, OH | 11/10/88 |
| 19. Proctor and Gamble Laboratories, Miami Valley, OH | 5/22/88 |
| 18. Smith-Kline and French Laboratories, Philadelphia, PA | 1/29/88 |
| 17. Gordon Research Conference on Photochemistry, East Hanover, NH | 7/12/87 |
| 16. Merck, Sharp, and Dohme Company, Rahway, NJ | 5/15/87 |
| 15. Sandoz Research Institute, East Hanover, NJ | 3/13/87 |
| 14. Florida State University, Tallahassee, FL | 3/5/87 |
| 13. Wake Forest University, Winston-Salem, NC | 2/4/87 |
| 12. Stuart Pharmaceuticals, Wilmington, DE | 2/3/87 |
| 11. University of Akron, Akron, OH | 1/27/87 |
| 10. Swarthmore College, Swarthmore, PA | 9/26/86 |
| 9. North Carolina State University, Raleigh, NC | 2/24/86 |
| 8. Upjohn Company, Kalamazoo, MI | 9/27/85 |
| 7. Gulf Coast Chemistry Conference, Pensacola, FL | 9/20/85 |
| 6. Schering Corporation, Bloomfield, NJ | 6/6/85 |
| 5. E.I. Squibb and Sons Company, Lawrenceville, NJ | 9/16/84 |
| 4. E.I. Squibb and Sons Company, New Brunswick, NJ | 9/17/84 |
| 3. Burroughs-Wellcome Company, Research Triangle Park, NC | 2/10/84 |
| 2. Union Carbide Company, Research Triangle Park, NC | 4/19/83 |
| 1. University of North Carolina, Department of Pharmacy | 10/15/81 |

DEPARTMENTAL COMMITTEES

Secretary to Faculty (1981-82)
Undergraduate Studies Committee (1982-85)
Ad Hoc Curriculum Study Committee (1983-84)
Departmental A.B. Advisor (1982-86)
Fall Picnic Committee (1982-86)
Co-organizer NSF 400 MHz NMR Proposal (1984 with M.S. Brookhart)
Safety Committee (1985-87)
Organic Search Committee (1984, 1985, 1989)
Faculty Supervisor R-24B and EM360 NMR Spectrometers (1984-86)
Organizer, NSF 200 MHz NMR Proposal (1986)
Undergraduate Studies Committee (1987-89)
Graduate Studies Committee (1987-90)
Kenan Foundation Committee (1988)
Grievance Committee (1987-88)
Secretary, Organic Division (1987-91)
Faculty Search Committee (1989-90)
Five Year Planning Committee (1989-90)
UNC-Glaxo Symposium Committee (1989-)
Continuing Education Committee (1989-91)
Visiting Professors Committee (1990-92)
Vice-Chairman for Facilities and Space (1992-93)
Departmental Short Course Program (1982, 1992)
Colloquium Committee (1992-1995)
Buildings and Beautification Committee (1992-95)
Ad Hoc Committee on Tenure and Promotions Procedures (1993)
Ad Hoc Committee on Organizing Response to External Review (1994)
Ad Hoc Committee on Tenure and Promotions (1994-95)
Biological Chemistry Search Committee (1994-95)
Vice Chairman for Graduate Studies (1995-2000)
Organizer, NSF Three Year NMR Development Proposal (1995)
Planning Committee (1996)
Chair, Organic Search Committee (1996)
NMR Committee (1997-2000)
Organic Search Committee (1998)
Development Committee (1999-)
Visiting Lecturers Committee (2000-2005)
Chair, Organic Search Committee (2000)
Ad Hoc Committee on Tenure and Promotions (2001)
Ad Hoc Committee on External Review (2001)
Ad Hoc Committee on Building Planning (2001)
Ad Hoc Committee on Tenure and Promotions (2002, 20003, 2005)
Post Tenure Review Committee (2004-2007)
Slayton A. Evans Lecture Committee (2004-2005)
Chair, Strategic Planning Committee (2005-2007)
Education Committee (2013-)
Lecturer Search Committee (2016-17)

DEPARTMENTAL TEACHING

Chemistry 61/261, Organic Chemistry I: Fall '82, '83, '88, '89, '92, '95, '98, '99, '01, '02, '03, '05, '13, '14, '15, '16, '17; Spring '14
Chemistry 65H/265H, Organic Chemistry I, Honors: Fall '90, '96
Chemistry 66H/266H, Organic Chemistry II, Honors: Spring '01, '02
Chemistry 62/262, Organic Chemistry II: Spring '85, '86, '93, '96, '05, '06, '15, '16, '17, Summer '15.
Chemistry 160/460, Intermediate Organic Chemistry: Fall '87
Chemistry 166/466, Advanced Organic Chemistry I: Fall '84, '85, '93, '94, '00
Chemistry 168/468, Synthetic Aspects of Organic Chemistry: Spring '83, '84, '88, '89, '90, '91, '94, '97, '98, '99, '00, '03, '04, '07
Chemistry 41L, Organic and Analytical Chemistry Laboratory: Fall '81
Chemistry 42L, Organic and Analytical Chemistry Laboratory: Fall '81
Chemistry 62L/262L, Organic Chemistry Laboratory: Spring '88, '95
Chemistry 395, Undergraduate Research in Chemistry: Fall '81-'95, '11, '12, Spring '82-'96, '12, '13, '14, '15.
Chemistry 261, Seminar in Organic Chemistry: Fall, '83, '92, '04
Chemistry 262, Seminar in Organic Chemistry: Spring '87, '95
Chemistry 265, Special Topics in Organic Chemistry: Heterocyclic Chemistry: Spring '91
Chemistry 265, Special Topics in Organic Chemistry: Photochemistry: Spring '93
Chemistry 265, Special Topics in Organic Chemistry: Advanced Topics in Synthesis, Spring '97
Chemistry 361, Research in Organic Chemistry: Fall '82 - '11. Spring '82 - '12
Chemistry 394, Dissertation: Fall '82 - '11. Spring '82 - '12

UNIVERSITY SERVICE

Faculty Council, elected Member (1986-89; 1995-1998), Agenda Committee (1997-98)
Faculty Advisor, Alpha Epsilon Delta Pre-Medical Fraternity (1986-91)
University Committee on Research (1993-96), Chair (1995-96)
Member-Administrative Board of the General College (1991-94)
Member-Institute for Natural Products Chemistry with the School of Pharmacy and Department of Medicinal Chemistry (1984 -)
Vice Chancellor's Research Advisory Committee (1995-96)
Chair, Associate Dean's Oversight Committee on Conflict of Interest for Startup Companies (1996-97)
Member-Administrative Board of the Graduate School (1997-2000)
University Teaching Awards Committee, Chair, Tanner-Friday Subcommittee (1999-00)
Freshman Reading Selection Committee (2000)
Member Lineberger Comprehensive Cancer Center (2001-)
Provost's Committee to Evaluate Facilities and Administrative Funds (2002)
Dean, School of Pharmacy Search Committee (2002)
Provost's Teaching Assistant Advisory Task Force (2002-2003)
Chair, Salary Equity Committee (2003)
Chair, Associate Dean's Oversight Committee on Conflict of Interest (2005)
Search Committee for Joint Appointment in Chemistry-Medicinal Chemistry (2006)
OASIS Advisory Committee (2007-2009)
Science Admissions Advisory Committee (2007-2009)

Science Complex Core Committee (2007-2011)
Genomic Science Building Core Committee (2007-2012)
Office of Technology and Development Advisory Committee (2008-13)
UNC Best Board of Directors, UNC School of Education (2009-13)
Science Advisory Board, Carolina Center Integrative Chemical Biology Drug Discovery
Board of Directors, Carolina Center Integrative Chemical Biology Drug Discovery
(2009-13)
Central Steering Committee, Carolina Center Cancer for Nanotechnology Excellence
(2009-13)
Board of Governors, Statistical and Applied Mathematical Sciences Institute (2009-13)
IT Computing Governance Committee (2009-13)
Energy Frontier Research Center Internal Advisory Board (2009-13)
Facilities Planning Committee (2009-13)
Facilities Use Committee (2009-13)
Space Use Committee (2009-13)
Facilities Work Group (2009-13)
Classroom Policy Steering Committee (2010-13)
Office of Sponsored Research Advisory Committee (2010-13)
Carolina Cancer Center Nanotechnology Excellence (CCCNE) Board of Governors
(2009-13)
Sustainability Advisory Committee (2010-13)
Review Committee, Dean, School of Medicine (2011)
Executive Council, Triangle Materials Science Research, Engineering Center (2011-13)
College of Arts and Sciences Conflict of Interest Committee (2011-)
College of Arts and Sciences Applied Sciences Task Force (2011-12)
UNC Biomedical Research Imaging Center Advisory Board (2011-13)
College Task Force on Transforming Large Introductory Lecture Courses (2012-13)
Provost's Task Force on Massive Open Online Courses (MOOCs) (2012-13)
Board of Directors, Office of Postdoctoral Affairs (2012-13)
University Conflict of Interest Advisory Board (2012-13)
Arts and Sciences Advisory Committee (2013-16)
Quality Enhancement Plan Steering Committee (2014-15)
Co-Director AAU STEM Undergraduate Education Project (2013-2017)
Executive Director, Chancellor's Science Scholars (2015-2017)
University Teaching Awards Committee (2016-17)

REGIONAL-NATIONAL SERVICE

Membership Committee of NC Section of American Chemical Society (1983-1990)
Nominations Committee of NC Section of American Chemical Society (1987, 1996)
Secretary, NC Section of American Chemical Society (1988-90)
Canvassing Committee for ACS Award for Creativity in Organic Synthesis (1989-91), Chair (91)
Invited Observer, IUPAC Commission on Nomenclature, IUPAC Congress, Boston MA (1987)
Chairman-Elect, NC Section of American Chemical Society (1993)
Chairman, NC Section of American Chemical Society (1994)
Invited Expert Analyst: *ChemTracts Organic Chemistry* (1993-2003)
NIH Bio-organic and Natural Products Study Section Special Emphasis Panel (November, 1995)
NIH Grantsmanship Workshop Panel, ACS National Meeting, Washington, DC, 2000
NIH Medicinal Chemistry A Study Section, ad hoc member (Feb. 1996, Oct. 2000, Mar. 2003)

NIH SSSB Study Section, March 2002, November 2002, November 2003, July 2004
Organizer, IUPAC Symposium on Stereoselective Synthesis, IUPAC Meeting, August 11-14, 2003
Co-Chair, Symposium Honoring Ernest Eliel, SERMACS, 2004
Editorial Advisory Board, *Journal of Organic Chemistry* (2004-2008)
Editorial Board, *Organic and Biomolecular Chemistry* (2008-)
NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)

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| Referee- | Journal of the American Chemical Society | Organic Letters |
| | Journal of Organic Chemistry | Tetrahedron Letters |
| | Tetrahedron: Asymmetry | Tetrahedron |
| | Journal of Carbohydrate Chemistry | Chemical Reviews |
| | Canadian Journal of Chemistry | Synlett |
| | Synthetic Communications | Organic Reactions |
| | Journal of Natural Products | Synthesis |
| | Bioorganic and Medicinal Chemistry | Journal of Chemical Research |
| | Science | |
| | Nature | |
| | Organometallics | |
| | Bioorganic and Medicinal Chemistry Letters | |
| | Journal of the Chemical Society | |
| | Journal of the Chemical Society: Chemical Communications | |
| | Organic and Biomolecular Chemistry | |

Reviewer- Research Corporation
Petroleum Research Fund
National Science Foundation
Sloan Foundation
Jeffrus Trust
International Science Federation
North Carolina Board of Science and Technology
Arkansas Board of Science and Technology
NIH Biorganic and Natural Products SS Special Emphasis Panel (November, 1995)
NIH Medicinal Chemistry A Study Section, ad hoc member (Feb, 1996; Oct. 2000, March 2003)
NIH Physical Biochemistry Study Section, ad hoc member (October, 1997)
NIH SSSB Study Section, March 2002, November 2002, November 2003, July 2004
Research Grants Council of Hong Kong
NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)

DISSERTATIONS AND THESES

| | |
|----------------------------------|---|
| Lever, John G., Ph.D. 1986 | "Studies Toward the Synthesis of the Milbemycins and Avermectins. Synthesis of the Hexahydrobenzofuran Subunit" currently employed Milliken Research Corporation, Spartanburg, SC |
| Bankaitis, Danute M., Ph.D. 1986 | "Studies Toward the Synthesis of the Milbemycins and Avermectins. A Formal Synthesis of Milbemycin β_3 " currently employed Amgen Corporation |
| Mascarella, S. Wayne, Ph.D. 1986 | "The Total Synthesis of (\pm)-Silphinene" currently employed Research Triangle Institute, Research Triangle Park, NC |
| Deloach, Joseph A., Ph.D. 1987 | "A Photochemical Approach to the Synthesis of Cyclopentanoid Natural Products" currently employed Eastman Chemical Co., Kingsport, TN |
| Gould, Lori D., Ph.D. 1987 | "Total Synthesis of Laurenene" |
| Hollis, W. Gary, Jr., Ph.D. 1988 | "Studies Toward the Synthesis of Milbemycin D" currently employed Roanoke College, Roanoke, VA |
| O'Mahony, Rosemary, Ph.D. 1988 | "Studies Toward the Synthesis of Spiroketal Containing Natural Products: Talaromycin A and Avermectin B1b" currently employed Trivariant, Inc., Chapel Hill, NC |
| Dudek, Caroline M., Ph.D. 1989 | "Studies Toward the Total Synthesis of Subergorgic Acid" currently employed Dupont, Brookline, MA |
| Thomas, James B., Ph.D. 1990 | "Studies Toward the Synthesis of Ginkgolide B" currently employed Research Triangle Institute, Research Triangle Park, NC |
| Stetson, Katherine M., M.S. 1990 | "Studies in Asymmetric Photocycloadditions," currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC |
| Gray, Jeffrey L., Ph.D. 1991 | "A Formal Synthesis of (\pm)-Bilobalide" currently employed Proctor and Gamble Co., Cincinnati, OH |
| Cheung, Adrian-W.H., Ph.D. 1991 | "Cyclobutylcarbinyl Radical Cleavage and Rearrangement: Studies Toward the Total Synthesis of Lubiminol" currently employed Hoffman La Roche Co., Nutley, NJ |

| | |
|------------------------------------|--|
| Dedopoulou, Dimitra, Ph.D. 1991 | "Studies Toward the Synthesis of Retigeranic Acid" currently employed Queens College, Charlotte, NC |
| Reinhold, Tracy L., Ph.D. 1992 | "Studies Toward the Synthesis of Crinipellin A" |
| Jung, David K., Ph.D. 1992 | "A Total Synthesis of (±)-Bilobalide" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC |
| McKerlie, Lynne A., Ph.D. 1992 | "Studies Toward the Synthesis of Lubiminol" currently employed Chemical Synthesis Services Durham, NC |
| Nantermet, Philippe G., Ph.D. 1993 | "Studies Toward the Total Synthesis of the Ginkgolides" currently employed Merck and Co. West Point, PA |
| Vallin, Isabelle M., Ph.D. 1993 | "An Approach to the Synthesis of Milbemycin D" currently employed Proctor and Gamble, Belgium |
| Watson, Paul S., Ph.D. 1994 | "Stereoselective Photocycloadditions of 1,7-Dienes. An Approach to the Lycopodium Alkaloid Magellanimone" currently employed, Inspire Pharmaceuticals, RTP, NC |
| Huang, Sujuan, M.S. 1995 | "Radical Fragmentations of Cyclobutanes for the Synthesis of Medium Rings" currently employed Novartis, Summitt, New Jersey |
| Mathes, Brian M., M.A. 1996 | "An Approach to the Lycopodium Alkaloid Magellanimone" currently employed Eli Lilly, Indianapolis, IN |
| Guise Lisa E., Ph.D. 1996 | "An Intramolecular [2+2] Photocycloaddition Approach to Taxane Diterpenes" currently employed Pharmacopeia, Philadelphia, PA |
| Carroll, Charlotte A., M.A. 1996 | "Studies Directed Toward the Total Synthesis of Magellanimone: A Focus on the Rearrangement of the Fused Ring System" |
| Tyhonas, John, M.A. 1997 | "Studies Directed Toward the Total Synthesis of Taxusin" currently employed Ligand Pharmaceuticals, San Diego, CA |
| Rafferty, Steven W., M.A. 1997 | "Stereo and Regioselective Reductive Fragmentations of Spiroketal" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC |

| | |
|--------------------------------------|---|
| Wang, Zhuo, Ph.D. 1997 | "Total Synthesis of (\pm)-Lubiminol" currently postdoctoral fellow, University of Ottawa, Ottawa, Ontario |
| King, Bryan W., Ph.D. 1998 | "Asymmetric Aldol Additions with Titanium Enolates of Acyloxazolidinethiones: Asymmetric Synthesis of the Carbocyclic Nucleoside 1592U89; Asymmetric Total Synthesis of Callystatin A:" currently employed, Glaxo-Smith-Kline, Philadelphia, PA |
| Murphy, Meghan M., M.S. 1999 | "Enantioselective Synthesis of Carbocyclic Nucleosides" |
| Choy, Allison L., Ph.D. 1999 | "Enantioselective Synthesis of Medium Ring Ethers" currently employed Pfizer Research Labs, Ann Arbor, MI |
| Carroll, Charlotte A., Ph.D. 1999 | "Approach to the Synthesis of the Antitumor Agent Leucascandrolide A" currently employed Magellan Laboratories, Research Triangle Park, NC |
| Washburn, David G., Ph.D. 1999 | "Synthesis of the AB Spiroketal Fragment of Spongistatin 1" currently employed Glaxo Smith Kline Inc., Philadelphia, PA |
| McDowell, Jacob, M.A. 2000 | "Studies Toward the Total Synthesis of Mucocin" currently employed, Eli Lilly and Co. |
| Lappenbusch, William C., Ph.D., 2000 | "Studies Toward the Total Synthesis of Cocaine and Ceroplastol", currently employed Chemcodes, RTP, NC |
| Tabet, Elie A., Ph.D., 2000 | "Asymmetric Aldol-Metathesis Approach to the Synthesis of Carbocycles and Heterocycles: Total Synthesis of Trehazolin, Prelaureatin and Laurallene" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC |
| Wells, Angela L., Ph.D. 2000 | "Studies Toward the Total Synthesis of Magellanimone and Mucocin" currently Assistant Professor, Morgan State University, Baltimore, MD |
| Hauser, E. Bryan, Ph.D. 2001 | "Studies in Crossed Photocycloadditions, An Approach to the Total Synthesis of CP263,114" currently employed Davidson College, Davidson, NC |
| Emmitte, Kyle A., Ph.D. 2001 | "Synthesis of Medium Ring Ethers by Olefin Metathesis: Laurencin, Isolaurallene, Brevetoxin A" |

| | |
|----------------------------------|--|
| | currently employed Vanderbilt University, Nashville, TN |
| Katz, Jason D., Ph.D. 2002 | “Total Synthesis of Spongistatin 1” currently employed Merck and Co., Boston, MA |
| Green, Jennifer L., Ph.D. 2002 | “Total Synthesis of <i>trans</i> -Isoprelaurefucin” currently postdoctoral fellow, Williams College |
| Diaz, Caroline J., M.A. 2003 | “Development of a Novel Methodology for the Construction of 2,6-Disubstituted Tetrahydropyranone Systems and Application Toward the Total Synthesis of (–)-Zampanolide” currently employed Glaxo-Smith-Kline, Research Triangle Park, NC |
| Stanton, Matthew G., Ph.D. 2003 | “The Total Synthesis of (–)-Laulimalide and Efforts Toward the Total Synthesis of (+)-Lasonolide A” currently employed, Merck and Co, West Point, PA |
| Chaudhary, Kleem, Ph.D. 2003 | “Asymmetric Aldol Additions Using Titanium Enolates of Acylthiazolidinethiones: Application Towards the Total Synthesis of Apoptolidinone” currently employed Gilead Pharmaceuticals, So. San Francisco, CA |
| Cleary, Pamela A., Ph.D. 2003 | “Studies Toward the Total synthesis of Brevetoxin A,” currently employed Glaxo Smith Kline Inc., Philadelphia, PA |
| Diaz, Frank A., Ph.D. 2003 | “Studies Toward the Total synthesis of Mucocin,” currently Assistant Professor of Chemistry, University of North Alabama, Florence, AL |
| Siliphaivanh, Phieng, Ph.D. 2003 | “Total Synthesis of the Leucascandrolide A Macrolactone.” currently employed Merck and Co., Boston, MA |
| Kung, Joyce E., M.S. 2004 | “Progress Towards the Synthesis of the Bis-THF Core of Annonaceous Acetogenins,” currently law student at UNC-Chapel Hill. |
| Samuelson, Adam, M.S. 2004 | “Studies Toward the Total Synthesis of Migrastatin,” currently employed, Inspire Pharmaceuticals RTP, NC |
| She, Jin, Ph.D. 2004 | “Total Synthesis of (+)-Gigantecin,” currently employed, Inspire Pharmaceuticals, RTP, NC |
| Brown, Brandon H., Ph.D. 2004 | “Total Synthesis of Ophirin B,” currently employed Gilead Pharmaceuticals, S. San Francisco, CA |

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|-----------------------------------|---|
| Vanier, Grace S., Ph.D. 2005 | "Total Synthesis of SCH351448," currently employed CEM Corp. Charlotte, NC |
| Slade, David J., Ph.D. 2005 | "Total Synthesis of 6-Deoxyerythronolide B," currently employed, Inspire Pharmaceuticals, RTP, NC |
| DeBaillie, Amy C., Ph.D. 2005 | "Total Synthesis of Rogioloxepane A and Bistramide A," Currently employed, Eli Lilly, Indianapolis, IN. |
| Gowani, Amran A., M.S. 2006 | "Studies Toward the Total Synthesis of Hygrolidin," currently employed, Merck and Co., Rahway, NJ |
| Showalter, Todd, M.S. 2006 | "Studies in Diastereoselective Anti Aldol Reactions" Currently employed, Novartis, Cambridge, MA |
| McDougall, Patrick J., Ph.D. 2006 | "Synthesis of the ABCDE Fragment of Brevetoxin A," Currently employed, Chevron, Inc. CA |
| Smith, Aaron C., Ph.D. 2006 | "Synthesis of Yokonolide A, Aglycone," Currently employed, Pfizer, Inc. Groton, CT. |
| Milner, Erin E., Ph.D. 2007 | "Efforts Directed Toward the Total Synthesis of Lasonolide A," currently employed US Army Research. |
| Ellis, J. Michael, Ph.D. 2007 | "Synthesis of Asbestinins and Brevetoxin A," currently employed, Merck and Co. Cambridge, MA |
| Zuccarello, J. Lucas, Ph.D. 2007 | "Synthesis of the GHIJ Fragment of Brevetoxin A," currently postdoctoral fellow, University of North Carolina at Chapel Hill |
| Zhang, Yan, Ph.D. 2007 | "Synthetic studies on Mucocin and Brianthein A," Currently employed, Pfizer, Inc. Groton, CT. |
| Jacobs, Danielle, Ph.D. 2008 | "Towards the Total Synthesis of Pyranicin," currently Assistant Professor of Chemistry, Ryder University |
| Shamszad, Mariam, Ph.D. 2009 | "Highly Selective Auxiliary-Mediated Acetate Aldol Additions and Progress Toward the Synthesis of (-)-Brevenal," currently employed Lubrizol Corp. Wickliffe, Ohio |
| Haley, Matthew W., Ph.D. 2009 | "Studies Toward the Total Synthesis of Sorangicin A," currently postdoctoral fellow, Colorado State University |

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|------------------------------------|---|
| Stevens, Jason M., Ph.D. 2010 | “Total Synthesis of Irciniastatin A (Psymberin),” currently postdoctoral fellow, Princeton University |
| Azman, Adam M., Ph.D. 2010 | “Spiroketal as Natural Product Mimics and Progress Toward the Total Synthesis of Milbemycin β 14,” currently employed, Butler University |
| Mans, Mark, C., Ph.D. 2011 | “Synthesis and Structural Revision of the Proposed Structure of Briarellin J.” currently employed Jost Chemical Co., Inc., St. Louis, Mo. |
| Martin, Timothy J., Ph.D. 2011 | “Progress Toward the Synthesis of Amphidinol 3,” currently postdoctoral fellow, Colorado State University |
| O’Bryan, Elizabeth A., Ph.D. 2011 | “Synthesis of Spirofungins A and B; Formal Synthesis of Sorangicin A” currently postdoctoral fellow, Northwestern University |
| Dechert, Anne-Marie R., Ph.D. 2011 | “Total Synthesis of the Polyketide Natural Product (-)- Pironetin and Studies Toward the Total Synthesis of Iriomoteolide 1a,” currently postdoctoral fellow, University of Texas, Austin. |
| Williams, Philip S., Ph.D. 2012 | “Stereoselective Synthesis of Quaternary Carbons via the Dianionic Ireland-Claisen Rearrangement: An Approach to the Synthesis of Briarane Diterpenes,” currently employed Merck and Co., Durham, NC |
| Hughes, Colin O., Ph.D. 2012 | “Synthesis of the Proposed Structure of Aldingenin B.” Currently employed Jones Day, San Diego, CA. |
| 58 Ph.D.’s, 13 Masters | |

POSTDOCTORALS

| | |
|----------------------------------|--|
| Kim-Meade, Agnes S. (1993-1996) | employed: Schering Corp., Bloomfield, NJ |
| Zawacki, Frank J. (1993-1996) | employed: American Cyanamid, Princeton, NJ |
| Al-awar, Rima S. (1993-1995) | employed: Eli Lilly and Co., Indianapolis, IN |
| Wagman, Allan S. (1995-1996) | employed: Chiron, San Francisco, CA |
| Kirincich, Steven J. (1996-1998) | employed: Genetics Institute, Cambridge, MA |
| Watterson, Scott H. (1996-1998) | employed: Bristol-Myers Squibb, Lawrenceville, NJ |
| Captain, Laura F. (1997-1999) | employed: Johnson and Johnson, La Jolla, CA |
| Zuercher, William (1998-2000) | employed: Glaxo Smith Kline Inc., RTP, NC |
| Pace, Jennifer M. (1998-2000) | employed: Abbott Laboratories, Abbott Park, IL |
| Nakagawa-Goto, Kyoko (1998-02) | employed: Associate Professor, Kanazawa University |
| Looker, Adam (2000-2002) | employed: Vertex Pharmaceuticals, Cambridge, MA |
| Allwein, Shawn P. (2001-2002) | employed: Cephalon Pharmaceuticals, Philadelphia, PA |
| Powell, Mark T. (2001-2003) | employed: Johnson and Johnson, Raritan, NJ |
| Heady, Tiffany A. (2001-2003) | employed: US Army Research, Frederick, MD |
| Long, Alan (2003-2004) | employed: Scynexis Pharmaceuticals, RTP, NC |
| Parrish, Jonathon D. (2003-2005) | employed: Cephalon Pharmaceuticals, Philadelphia, PA |
| Perales, Joe B. (2003-2005) | employed: Scynexis Pharmaceuticals, RTP, NC |
| Vong, Binh (2004-2005) | employed: Neurogen Bioscience, San Diego, CA |
| Plake, Hilary R. (2004-2005) | employed: Amgen, San Francisco, CA |
| Causannel, Franck (2004-2006) | employed: Aventis, Paris, France |
| Martinot, Theodore (2005-2006) | employed: Vertex Pharmaceuticals, Cambridge, MA |
| Schaaf, Gregory (2004-2006) | employed: Glaxo Smith Kline Inc., RTP, NC |
| Christie, Hamish S. (2003-2006) | employed: University of Arizona, Tuscon, AZ |
| Hatcher, Mark (2005-2007) | employed: Glaxo Smith Kline Inc., RTP, NC |
| Krelien, Matthew (2005-2007) | employed: Celgene, Summit, NJ |
| Stauffer, Christina (2007-2008) | employed: Dupont, Wilmington, DE |
| Mattson, Anita (2007-2009) | employed: Ohio Sate University |
| Carper, Daniel (2010-2012) | employed: Irix Pharmaceuticals, Florence, SC |
| Butler, Kristina (2011-2013) | employed: Albemarle, Baton Rouge, LA |
| Clemens, Alexander (2011-2012) | employed: Albany Molecular Research, Albany, NY |
| Knight, John (2012-2015) | employed: Meredith College, Raleigh, NC |

UNDERGRADUATE RESEARCH ASSISTANTS

| | |
|--------------------------------|-------------------------------|
| Lowen, Gregory T. (1981-82) | Schetzina, Karen (1991-93) |
| Hollis, W. Gary, Jr. (1982-83) | Trotter, B. Wesley (1991-93) |
| Linder, Lori A. (1982-83) | Shakib, Sharene (1991-93) |
| Washburn, Lisa K. (1982-83) | Lacey, D. Borden (1992-94) |
| Battigelli, Lisa C. (1984-85) | Dean, William (1993-94) |
| Dickson, John K. (1984-85) | Danek, Krisstina (1993-94) |
| Courtney, Ray D. (1985-87) | Davidson, Stephanie (1994-95) |
| Blanton, Douglas C. (1986-87) | Davis, Jamie (1995-96) |
| Huber, Scott K. (1986-87) | Downey, Wade (1996-97) |
| Ludwig, Beverly (1986-87) | Williams, John (1997) |
| Wills, Matthew K. (1986-88) | Wagner, Diana (1997) |
| Dore, Timothy (1988-90) | Inman, J. Lucas (1997-1998) |

Biswas, Kunda, (1991-93)
Smirnov, Dimitri (2005)
Mighion, Jeffrey (2007-09)
Harris, Ashley (2013-14)
Coyne, Glynis (2014 -2106)

McCall, Chad (1997-1998)
McAdam, Catherine (2010)
Choy, Bonnie (2011-12)
Movassaghi, Cameron (2015-26)
Janeira, Emily (2015 - 2017)

CURRENT RESEARCH SUPPORT:

"Meyerhoff Adaptation Project," Howard Hughes Medical Institute, 10-1-14 to 9-31-19,
\$475,000 per year.

GRANT ACQUISITIONS

"Studies in Intramolecular Photocycloadditions: An Approach to Pentalenic Acid," Petroleum
Research Fund, June 1, 1982 - August 31, 1984; \$10,000.

"Asymmetric Diels-Alder Reactions," University Research Council, April 1982 - 1984; \$1,500.

"400 MHz Varian NMR Spectrometer," National Science Foundation, 1984 (with M.S.
Brookhart), \$200,000.

"Total Synthesis of The Avermectins," Merck, Sharp and Dohme Co., April 1, 1983; \$1,500.

"Total Synthesis of The Avermectins and Milbemycins," National Institutes of Health, AI-19544,
March 1, 1983 - February 28, 1986; \$233,547.

"Total Synthesis of Laurenene," Junior Faculty Development Award, UNC-CH, January 1, 1984
- December 31, 1984, \$5,000.

"Synthesis of Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-
38904, July 1, 1983 - June 30, 1986; \$194,389.

"Total Synthesis of Milbemycins and Related Studies," National Institutes of Health, AI-19544,
September 1, 1986 - August 31, 1989; \$368,022.

"200 MHz NMR Spectrometer, National Science Foundation, 1986, \$150,000.

"Synthesis of the Milbemycins," The Upjohn Co., March 1, 1987, \$3,000.

"Synthesis of Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-
38904, August 1, 1987 - July 31, 1990; \$355,288.

"Synthesis of Ginkgolide B," Rhone Poulenc Co., \$5,500.

"Synthesis of Ginkgolide B," Randleigh Foundation, Chapel Hill, NC., \$5,000.

"Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-38904, July 1,
1991 - June 30, 1994; \$449,688.

"Synthetic Applications of Photocycloadditions," National Science Foundation, CHE-9014641, August 15, 1990 - December 31, 1993, \$217,600.

"Photocycloaddition-Fragmentation Sequences in Synthesis," Petroleum Research Fund, January 1, 1991 to December 31, 1993, \$40,000.

"Synthesis of Ginkgolide B," Rhone Poulenc Co., unrestricted grant, \$12,000.

"Synthetic Applications of Photocycloadditions," National Institutes of Health, GM-38904, July 1, 1994 to June 30, 1998, \$721,980.

"Photocycloadditions in Synthesis," National Science Foundation, CHE-9319512, March 1, 1994 to February 28, 1997, \$231,000.

"Asymmetric Synthesis of Polyketides" National Institutes of Health, CA-63572, February 1, 1995 to January 31, 1998, \$587,649.

"Research Opportunity Award for George Maguire, Methodist College" National Science Foundation, May 15, 1995 to August 15, 1995; \$12,000.

"NMR Development Plan for the Chemistry Department at The University of North Carolina At Chapel Hill" National Science Foundation, 7-1-96 to 6-30-98. Funded for \$836,660 for two years.

"Minority Supplement for Angela Wells" National Institutes of Health, GM38904, Funded for March 1, 1996 to June 30, 1996, \$19,950 per year.

"The Need for and Supply of African-American Ph.D. Chemists" Alfred P. Sloan Foundation, \$210,000, January 1, 1997 to December 31, 1999. (with S.A. Evans and E.T. Samulski)

"Enantioselective Synthesis of Nucleoside Analog Libraries" Glaxo-Wellcome, Inc. \$125,000, July 1, 1997 to June 30, 1998.

"Asymmetric Synthesis of Polyketides" National Institutes of Health, CA-63572, July 1, 1998 to June 30, 2002, \$749,693, 12.0 percentile.

"Asymmetric Synthesis of Novel Natural Products," National Institutes of Health, GM-38904, July 1, 1998 to June 30, 2002, \$831,960; 5.6 percentile.

"Enantioselective Synthesis of Nucleoside Analog Libraries" Glaxo-Wellcome, Inc. \$125,000, July 1, 1999 to June 30, 2000.

"Minority Supplement for Frank Diaz" National Institutes of Health, GM38904, Funded for July 1, 1999 to June 30, 2002, \$102,621.

"Asymmetric Synthesis of Medium Ring Ethers" National Institutes of Health, GM-60567, February 1, 2000 to January 31, 2004, \$758,778, 10.6 percentile.

"Training of Scientifically Versatile Women and Minorities in the Chemical Profession" Department of Education, Graduate Assistance in Areas of National Need (GAANN), August 15, 2000 to August 14, 2003, \$765,600.

"The Need for and Supply of African-American Ph.D. Chemists" Alfred P. Sloan Foundation, \$270,000, January 1, 2000 to December 31, 2003.

"Minority Supplement for Mark Powell" National Institutes of Health, GM60567, Funded for February 1, 2001 to January 31, 2003, \$116,000.

"Asymmetric Synthesis of Antitumor Agents" National Institutes of Health, CA-63572, April 1, 2002 to March 31, 2006, funded for \$1,118,722, 3.8 percentile.

"Asymmetric Synthesis of Novel Natural Products," National Institutes of Health, GM-38904, funded for January 1, 2003 to December 31, 2006, \$1,138,155, 17 percentile.

"Minority Supplement for Joe B. Perales" National Institutes of Health, CA63572, funded for May 1, 2003-June 30, 2005. \$133,864.

"Asymmetric Synthesis of Medium Ring Ethers" National Institutes of Health, GM-60567, \$1,455,000 funded for February 1, 2004 – January 31, 2008, \$ 1,149,232, 10.4 percentile.

"Micromass Mass Spectrometer," National Institutes of Health, April 1, 2004– March 31, 2005, submitted March 21, 2003; priority score: 129. Funded for \$330,000.

"Asymmetric Synthesis of Polyethers" National Institutes of Health, GM-60567, funded for February 1, 2008 – January 31, 2013, \$1,300,034; priority score 150; 11.5 percentile.

"MRI: Acquisition of a 600MHz NMR Spectrometer with Cryogenic Probe" National Science Foundation, 0922858, \$770,000; September 1, 2009 – August 31, 2010.

"Synthesis and Mechanism of Action of Irciniastatin A," University Cancer Research Fund Innovation Award: \$200,000 total costs (7-1-10 to 6-31-13).

"Partial Renovation of Kenan Chemistry Laboratories," National Science Foundation ARI-2, \$1,841,124 (9-1-2010 to 8-31-2013).

"Development of Ladder Frame Polyethers as Drug Escortins," North Carolina Biotechnology Center, \$250,000; 1-1-2012 to 12-31-2013. Andrea Bourdelais, PI. Crimmins, Co-PI.

"AAU STEM Education Project Site," Association of American Universities, 9-1-2013 to 5-31-2017. \$500,000; Crimmins; Kevin Guskiewicz, Co-PI's.

"Meyerhoff Adaptation Project," Howard Hughes Medical Institute, 10-1-14 to 9-31-19. \$2,375,000.

Exhibit 2 to Crimmins Declaration

